IN THE SPECIFICATION:

Please **amend the paragraph beginning on page 7, line 20,** as follows:

To complete the PMD compensator 100 elements, a polarization controller 10 is optically coupled to the input port 5. Polarization controller 10 varies the orientation of the input signal's polarization axes to align with and oppose the polarization axes of the PMDEs 20, 40.

a1

Please **amend the paragraph beginning on page 8, line 22,** as follows:

The polarimeter 60 may include other polarizers different **[[**than**]]** from or in addition to the ones shown in Fig. **[[**4**]]** 3. For example, a combination of elliptical polarizers having different polarization orientations could be used as a substitute or in addition to the polarizers 52, 54, 56. For simplicity, a set of three polarizers 52, 54, 56 is sufficient for the invention to operate properly. In other words, the set of three polarizers 52, 54, 56 permits the invention to "see" a polarization state with three degrees of freedom and thereby effect control over a full range of PMDs.

a2

Please **amend the paragraph beginning on page 9, line 5,** as follows:

Dithering the source permits the PMD to be observed. Given that a signal passes through a path having PMD, the output state of polarization (SOP) changes as a function of wavelength. The invention exploits this phenomenon by intentionally varying the source wavelength and observing the resulting changes to the ~~state of polarization~~ SOP. When the net PMD of the communication system plus the compensator is small, this results in a small change in [[a]] the dither observed by the polarimeter 60. In other words, when the PMD compensator is set correctly, the observed dither in the SOP by polarimeter 60 is small.

a3

Please **amend the paragraph beginning on page 10, line 3,** as follows:

The controller 70 may also utilize an adaptive learning algorithm to improve the degree of control and to better compensate for the PMD of the input signal 1. ~~There are a~~ A variety of conventional adaptive learning algorithms [[that]] may be applied by the invention such as, for example, neural networks, expert systems, and statistical learning algorithms. Such adaptive learning algorithms would accept as inputs the d1, d2 and d3 values from the

a4

polarimeter **[[30]]** 60 to generate output control signals for the polarization controller 10 and the variable retarder 30.

Please **amend the paragraph beginning on page 12, line 7,** as follows:

a5

Fig. 6 further illustrates the adaptation of the generalized method of Fig. 5 to the particular PMD compensator 100 shown in Figs. 1-4. To adapt, the control step 290 would include the steps 310-340 of Fig. 6. ~~In detail~~ More specifically, the method would change the orientation of the polarization states (310) by controlling the polarization controller 10. The signal would then be input to the first PMDE (step 32) by supplying the signal from the polarization controller 10 to the PMDE 20. The phase angle would then be retarded (330) by controlling the retarder 30. The output of the retarder is supplied to the input of the second PMDE (step 340). The method controls steps 310 and 330 to minimize $(d1)^2 + (d2)^2 + (d3)^2$**[[.]]** and**[[,]]** thereby**[[,]]** reduces the PMD of the input optical signal so that a compensated signal 99 is output.